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**SHRIMP CULTURE IN LOW-SALINITY WATER IN ARKANSAS**

Bartholomew W. Green*

USDA-ARS Aquaculture Systems Research Unit
1200 North University Drive
Pine Bluff, AR 71601
bgreen@spa.ars.usda.gov

Aquifers that contain low-salinity (0.5 – 5 parts per thousand [ppt]) ground water are found throughout the southern United States, including in Arkansas. While farmers long have benefited from low-salinity ground water to control brown-blood disease in channel catfish production ponds, there is potential for using this same ground water to grow the Pacific white shrimp (*Litopenaeus vannamei*). The Pacific white shrimp, grown throughout Latin America and now introduced into China, adapts to and grows well in low-salinity water. The potential for inland farming of the Pacific white shrimp in Arkansas derives from the availability of low-salinity ground water, farmer aquaculture expertise, available pond infrastructure, a good growing season, accessible processing infrastructure, and isolation from existing shrimp diseases.

Low-salinity ground water in Arkansas is found primarily in the southeastern corner of the state, in Ashley, Chicot, Desha, Drew counties. This low-salinity ground water may have a different ionic composition than dilute seawater, and therefore require addition of deficient ions to ensure shrimp survival. Concentrations of the major ions in full-strength seawater (36 ppt), dilute seawater (1 ppt), fresh water, and ground water (average concentration and range) from Chicot County, Arkansas, are shown below.

| | Water Composition (mg/L) | | | | |
|---|---|---|---|---|---|
| Ion | Seawater 36 ppt | Seawater 1 ppt | Fresh Water | Chicot Co. Average | Chicot Co. Range |
| $Cl^-$ | 19,000 | 551 | 6 | 517 | 48 – 1,460 |
| $Na^+$ | 10,500 | 304 | 8 | 248 | 29 – 621 |
| $SO_4^{2-}$ | 2,700 | 78 | 16 | 111 | 8 – 200 |
| $Mg^{2+}$ | 1,350 | 39 | 11 | 56 | 1 – 148 |
| $Ca^{2+}$ | 400 | 12 | 42 | 180 | 6 – 320 |
| $K^+$ | 380 | 11 | 2 | 5 | 2 – 9 |
| $HCO_3^-$ | 142 | 92 (min.) | 174 | 438 | 248 - 466 |
| Other | 86 | 2 | 4 | - | - |

The status of shrimp farming in low-salinity water in Arkansas, which began in 2002, is reported. The research program on shrimp farming in low-salinity water conducted in Arkansas by researchers the USDA Agricultural Research Service and the University of Arkansas at Pine Bluff also will be discussed.